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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/658,594	09/08/2000	Shinya Matsumoto	CS-20-000908	2609
22712	7590	08/10/2005	EXAMINER	
PAUL A. GUSS PAUL A. GUSS ATTORNEY AT LAW 775 S 23RD ST FIRST FLOOR SUITE 2 ARLINGTON, VA 22202			CHUNG, DANIEL J	
			ART UNIT	PAPER NUMBER
			2677	

DATE MAILED: 08/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/658,594	<b>Applicant(s)</b> MATSUMOTO ET AL.	
	<b>Examiner</b> Daniel J. Chung	<b>Art Unit</b> 2672	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 18 May 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,5-7,11-13,17-20 and 67-82 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,5-7,11-13,17-20 and 67-82 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

Claims 1,5-7,11-13, 17-20 and 67-82 are presented for examination. Claims 21-66 have been cancelled and claims 67-82 have been added by the amendment filed on 5-18-2005. This office action is in response to the amendment filed on 5-18-2005.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 1,5-7,11-13, 17-20 and 67-82 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ebersole et al (6,500,008) in view of Brett et al (6,448,971).**

Regarding claim 1, Ebersole et al discloses that the claimed feature of a method of rendering an image, comprising the step of: mapping a plurality semitransparent textures ["texture map"; 11, i.e. fire texture, smoke texture, water texture] respectively onto of a plurality of semitransparent or transparent polygons [i.e. "particles"; 10,22] which make up an object [i.e. flame, smoke, water stream] ["A texture map representing a puff of smoke is applied to each particle, which consists of two triangles, and transparency of the texture mapped particle masks the appearance of polygon edges"

See col 7 line 19-22] (Also see col 7 line 1-24, col 7 line 46-55, col 9 line 16-23, col 17 line 28, col 18 line 1); and remapping ['mapping moved texture map in the direction of flow'] the plurality of semitransparent textures, respectively onto different polygons [i.e. any different rings 22] from among plurality of semitransparent or transparent polygons which make up object, wherein, in remapping step, semitransparent textures are moved so that semitransparent textures become associated respectively with different adjacent polygons, in a circulating manner, from among plurality of semitransparent or transparent polygons which make up object (See Fig 4, col 9 line 16-23, col 18 line 2-3)

Ebersole et al does not specifically disclose a plurality of textures in the same object in particle system. However, having multiple texture images [i.e. different shape/color/opacity texture map] to represent the object within particle system, is well known in an analogous art, in order to simulate the object with realistic appearance. Therefore, it would have been obvious one skilled in the art to include multiple numbers of different texture maps [different shape/color/opacity of water and smoke texture] into the teaching of Ebersole et al, thereby representing the objects [flame, steam, etc] with realism.

Ebersole et al does not specifically disclose that "remapping process", as recited claim. However, such limitation ["remapping"] is shown in the teaching of Brett et al. (See Fig 1-Fig 3, col 7 line 12-col 8 line 12) It would have been obvious to one skilled in the art to incorporate the teaching of Brett et al into the teaching of Ebersole et al, in

order to "maintain the appearance of reality" and "represent a change in the distance of the object from the viewer or a change in the orientation of the object relative to the viewer" (See col 7 line 66-col 8 line 7 in Brett), as such improvement is also advantageously desirable in the teaching of Ebersole et al for rendering optimized fire simulation system with a greater degree of realism.

Regarding claim 5, Ebersole et al discloses that arranging plurality of semitransparent or transparent polygons in one or more multiple layers [i.e. layered model shown in Fig 4]. (See Fig 4, col 9 line 16-23, col 18 line 2-3)

Regarding claim 6, claim 6 is similar in scope to the claim 1, and thus the rejection to claim 1 hereinabove is also applicable to claim 6.

In addition, Ebersole et al further discloses that storing a plurality of texture images in a texture rendering area of an image memory; storing a plurality of polygons which make up an object in a display rendering area of image memory. (See col 11 line 66-col 12 line 18)

Regarding claims 7,11-13 and 17-20, claims 7,11-13 and 17-20 are similar in scope to the combination of claims 1 and 5-6, and thus the rejections to claims 1 and 5-6 hereinabove are also applicable to claims 7,11-13 and 17-20.

Regarding claim 67, Ebersole et al discloses that wherein, in remapping step, at least one of plurality of semitransparent textures is moved in a different direction from another one of plurality of semitransparent textures. (See Fig 4, col 9 line 16-23, col 18 line 2-3)

Regarding claim 68, Ebersole et al discloses that object comprises a three dimensional object. (See Fig 4)

Regarding claims 69-82, claims 69-82 are similar in scope to the claims 67-68, and thus the rejections to claims 67-68 hereinabove are also applicable to claims 69-82.

**Claims 1,5-7,11-13, 17-20 and 67-82 are again rejected under 35 U.S.C. 103(a) as being unpatentable over Ebersole et al (6,500,008) in view of Seefeldt et al (6,448,971).**

Regarding claim 1, Ebersole et al discloses that the claimed feature of a method of rendering an image, comprising the step of: mapping a plurality semitransparent textures ["texture map"; 11, i.e. fire texture, smoke texture, water texture] respectively onto of a plurality of semitransparent or transparent polygons [i.e. "particles"; 10,22] which make up an object [i.e. flame, smoke, water stream] [A texture map representing a puff of smoke is applied to each particle, which consists of two triangles, and

transparency of the texture mapped particle masks the appearance of polygon edges”  
See col 7 line 19-22] (Also see col 7 line 1-24, col 7 line 46-55, col 9 line 16-23, col 17  
line 28, col 18 line 1); and remapping [‘mapping moved texture map in the direction of  
flow’] the plurality of semitransparent textures, respectively onto different polygons [i.e.  
any different rings 22] from among plurality of semitransparent or transparent polygons  
which make up object, wherein, in remapping step, semitransparent textures are moved  
so that semitransparent textures become associated respectively with different adjacent  
polygons, in a circulating manner, from among plurality of semitransparent or  
transparent polygons which make up object (See Fig 4, col 9 line 16-23, col 18 line 2-3)

Ebersole et al does not specifically disclose a plurality of textures in the same  
object in particle system. However, having multiple texture images [i.e. different  
shape/color/transparency texture map] to represent the object within particle system, is  
well known in an analogous art, in order to simulate the object with realistic appearance.  
Therefore, it would have been obvious one skilled in the art to include multiple numbers  
of different texture maps [different shape/color/transparency of water and smoke  
texture] into the teaching of Ebersole et al, thereby representing the objects [flame,  
steam, etc] with realism.

Ebersole et al does not specifically disclose that “remapping process”. However,  
such limitation [“remapping”] is shown in the teaching of Seefeldt et al. (See Abstract,  
Fig 2, col 1 line 49-59, col 4 line 29+) It would have been obvious to one skilled in the

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art to incorporate the teaching of Seefeldt into the teaching of Ebersole, in order to provide "transformations of the image without the cost of modifying each individual pixel of the transformed image" (See col 1 line 55-59 in Seefeldt), as such improvement is also advantageously desirable in the teaching of Ebersole for rendering optimized flame or water simulation system with less hardware/cost and faster processing time.

Regarding claim 5, Ebersole et al discloses that arranging plurality of semitransparent or transparent polygons in one or more multiple layers [i.e. layered model shown in Fig 4]. (See Fig 4, col 9 line 16-23, col 18 line 2-3)

Regarding claim 6, claim 6 is similar in scope to the claim 1, and thus the rejection to claim 1 hereinabove is also applicable to claim 6.

In addition, Ebersole et al further discloses that storing a plurality of texture images in a texture rendering area of an image memory; storing a plurality of polygons which make up an object in a display rendering area of image memory. (See col 11 line 66-col 12 line 18)

Regarding claims 7,11-13 and 17-20, claims 7,11-13 and 17-20 are similar in scope to the combination of claims 1 and 5-6, and thus the rejections to claims 1 and 5-6 hereinabove are also applicable to claims 7,11-13 and 17-20.



Regarding claim 67, Ebersole et al discloses that wherein, in remapping step, at least one of plurality of semitransparent textures is moved in a different direction from another one of plurality of semitransparent textures. (See Fig 4, col 9 line 16-23, col 18 line 2-3)

Regarding claim 68, Ebersole et al discloses that object comprises a three dimensional object. (See Fig 4)

Regarding claims 69-82, claims 69-82 are similar in scope to the claims 67-68, and thus the rejections to claims 67-68 hereinabove are also applicable to claims 69-82.

### ***Response to Arguments/Amendments***

Applicant's arguments with respect to claims 1,5-7,11-13, 17-20 and 67-82 have been considered but are moot in view of the new ground(s) of rejection. Specifically, in response to applicant's argument that the cited reference does not disclose "remapping process", the newly cited references (Brett et al, Seefeldt et al) teach such feature of invention as shown hereinabove. See the rejection hereinabove.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Chung whose

telephone number is (571) 272-7657. He can normally be reached Monday-Thursday and alternate Fridays from 7:30am- 5:00pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael, Razavi, can be reached at (571) 272-7664.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks  
Washington, D.C. 20231


**or faxed to:**

**571-273-8300 (Central fax)**

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

djc  
August 6, 2005



MICHAEL RAZAVI  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600